

The opinion in support of the decision being entered today was not written for publication and is not binding precedent of the Board.

Paper No. 13

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte JIH-PING PENG

Appeal No. 1999-0037
Application No. 08/611,657

ON BRIEF

Before HAIRSTON, BARRY, and BLANKENSHIP, Administrative Patent Judges.

BARRY, Administrative Patent Judge.

DECISION ON APPEAL

This is a decision on appeal under 35 U.S.C. § 134 from the rejection of claim 15. We reverse.

BACKGROUND

The invention at issue in this appeal relates to disc drives. A disc drive includes rigid discs mounted on a spindle motor that causes the discs to spin and the surfaces of the discs to pass under respective head gimbal assemblies

(HGAs). HGAs carry transducers that write data to and read data from the surfaces of the discs. An HGA includes a hydrodynamic (e.g., air) bearing slider and a gimbal. The gimbal provides a resilient connection that allows the slider to pitch and roll while following the topography of the disc.

A conventional "catamaran" slider includes a pair of raised side rails that face the surface of the disc and form air bearing surfaces. As the disc rotates, the disc drags air under the slider along the air bearing surfaces. As the air passes beneath the side rails, skin friction on the air bearing surfaces causes the air pressure between the disc and the air bearing surfaces to increase which creates a hydrodynamic lifting force that causes the slider to lift and fly above the surface of the disc.

The appellant's slider features a slider body with a leading edge, a trailing edge, and a length measured from the leading edge to the trailing edge. First and second longitudinal bearing surfaces are positioned on the slider

body and feature a leading portion, a trailing portion, and a waist portion. The waist portion of at least one bearing surface is wider than the leading and trailing portions and has a maximum width at a position that is between $1/3$ and $2/3$ the length of the slider body.

Claim 15 follows:

15. A disc drive comprising:

a housing;

a rigid disc mounted in the housing for rotation about a central axis, the disc having a recording surface;

a rotary track accessing arm supported over the recording surface; and

a slider carried by the track accessing arm for communication with the recording surface, the slider comprising:

a slider body having a leading edge, a trailing edge and a length measured from the leading edge to the trailing edge;

first and second longitudinal bearing surfaces positioned on the slider body which have a shape that concentrates positive pressure, which is developed between the bearing surfaces and the recording surface as the recording surface rotates about the central axis, between $1/3$ to $2/3$ the length of the slider body;

a shallow recessed area positioned between the first and second bearing surfaces; and

a third longitudinal bearing surface positioned within the shallow recessed area between the first and second longitudinal bearing surfaces and extending between the leading and trailing edges.

The reference relied on in rejecting the claims follows:

Read-Rite, European Patent Application 0600348A2,
June 8, 1994.

Claim 15 stands rejected under 35 U.S.C. § 103(a) as obvious over Read-Rite. Rather than repeat the arguments of the appellant or examiner in toto, we refer the reader to the brief and answer for the respective details thereof.

OPINION

In deciding this appeal, we considered the subject matter on appeal and the rejection advanced by the examiner. Furthermore, we duly considered the arguments and evidence of the appellant and examiner. After considering the record, we are persuaded that the examiner erred in rejecting claim 15. Accordingly, we reverse.

We begin by noting the following principles from

In re Rijckaert, 9 F.3d 1531, 1532, 28 USPQ2d 1955, 1956 (Fed. Cir. 1993).

In rejecting claims under 35 U.S.C. Section 103, the examiner bears the initial burden of presenting a prima facie case of obviousness. In re Oetiker, 977 F.2d 1443, 1445, 24 USPQ2d 1443, 1444 (Fed. Cir. 1992).... "A prima facie case of obviousness is established when the teachings from the prior art itself would appear to have suggested the claimed subject matter to a person of ordinary skill in the art." In re Bell, 991 F.2d 781, 782, 26 USPQ2d 1529, 1531 (Fed. Cir. 1993) (quoting In re Rinehart, 531 F.2d 1048, 1051, 189 USPQ 143, 147 (CCPA 1976)).

With these principles in mind, we consider the examiner's rejection and the appellants' argument.

Admitting, "Read-Rite Corporation does not specify an exact location for the waist portions (shown in Figures 4 and 5, for example)," (Examiner's Answer at 6), the examiner asserts, "[b]ecause of this, a routineer in the art would have located the waist at a position resulting from routine optimization and experimentation within the teachings of Read-Rite Corporation." (Id.) The appellants argue, "routine optimization and experimentation would not result in a slider

having the structure recited in claim ... 15." (Appeal Br. at 8-9.)

"Claims are not interpreted in a vacuum, but are part of and are read in light of the specification." Slimfold Mfg. Co. v. Kinkead Indus., Inc., 810 F.2d 1113, 1116, 1 USPQ2d 1563, 1566 (Fed. Cir. 1987) (citing Hybritech Inc. v. Monoclonal Anti-bodies, Inc., 802 F.2d 1367, 1385, 231 USPQ 81, 94-95 (Fed. Cir. 1986); In re Mattison, 509 F.2d 563, 565, 184 USPQ 484, 486 (CCPA 1975)). Here, claim 15 specifies in pertinent part the following limitations: "first and second longitudinal bearing surfaces positioned on the slider body which have a shape that concentrates positive pressure, which is developed between the bearing surfaces and the recording surface as the recording surface rotates about the central axis, between 1/3 to 2/3 the length of the slider body"

The specification defines the limitations as follows.

Side rails 38 and 40 form longitudinal bearing surfaces 62 and 64, respectively. Bearing surfaces 62 and 64 have a leading portion 66, a waist portion 68 and a trailing portion 70. Leading portion 66 includes a leading taper 72. Leading portion 66 and

trailing portion 70 have widths 74 and 76, respectively. Widths 74 and 76 may be equal to one another or different from one another. Waist portion 68 widens from leading portion 66 to a maximum width 78 and then narrows from maximum width 78 to trailing portion 70. Maximum width 78 is greater than widths 74 and 76 and is positioned at a distance 80 from leading edge 50.

...

Distance 80 is preferably between about $1/4$ to $3/4$, more preferably between about $1/3$ to $3/4$, and most preferably between about $1/3$ to $1/2$ the length 58 of slider 36. In these ranges, maximum width 78 is positioned about or slightly forward of the slider midpoint. Air is pressurized by leading taper 72 and then enters the wide area in waist portion 68. Most of the high pressure developed on waist portion 68 leaks along inside edge 82 before entering the narrow trailing portion 70. Therefore, more air with high pressure concentrates at the slider midpoint and does not contribute to pitch stiffness. Thus, the hydrodynamic features of slider 36 provide a very compliant air bearing which is particularly useful for proximity recording.

(Spec. at 8-9.)

Reading the claims in light of the specification, the limitations recite that the respective waists of two longitudinal bearing surfaces are wider than the leading and trailing portions of the surfaces and have a maximum width at a position between $1/3$ and $2/3$ the length of the associated slider body.

The examiner fails to show a suggestion of the limitations in the prior art. The U.S. Court of Customs and Patent Appeals (CCPA) established the rule that the discovery of an optimum value of a variable in a known process is normally obvious.

In re Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955). As with many rules, there are exceptions to the CCPA's rule. One exception is the case where a parameter being optimized was not recognized to be a "result-effective variable." In re Yates, 663 F.2d 1054, 1057, 211 USPQ 1149, 1151 (CCPA 1981); In re Antonie, 559 F.2d 618, 621, 195 USPQ 6, 9 (CCPA 1977). This exception applies here.

In determining whether the invention as a whole would have been obvious under § 103, we must first delineate the invention as a whole. In delineating the invention as a whole, we look to the subject matter recited in the claim and to those properties of the subject matter disclosed in the specification. Antonie, 559 F.2d at 619, 195 USPQ at 8. Here, the invention as a whole is that the respective waists of two longitudinal bearing surfaces are wider than the

leading and trailing portions of the surfaces and have a maximum width at a position between $1/3$ and $2/3$ the length of the associated slider body. The property is that more air with high pressure concentrates at the slider's midpoint and does not contribute to pitch stiffness. (Spec. at 9.)

The controlling question is simply whether the differences between the prior art and the appellant's invention as a whole viz., the positioning of the waists of the longitudinal bearing surfaces and its property, are such that the invention would have been obvious. The answer is no. The examiner has not shown that the prior art as a whole recognized that pitch stiffness depends on the positioning of the waists of longitudinal bearing surfaces. Recognition of this dependence is essential to the obviousness of conducting experiments to decide the positioning of the longitudinal bearing surfaces that will offer an acceptable pitch stiffness. The examiner gives no basis for the obviousness of the necessary experiments apart from the appellant's disclosure thereof.

For these reasons, we are not persuaded that teachings from the applied prior art would appear to have suggested the limitations of "first and second longitudinal bearing surfaces positioned on the slider body which have a shape that concentrates positive pressure, which is developed between the bearing surfaces and the recording surface as the recording surface rotates about the central axis, between 1/3 to 2/3 the length of the slider body" The examiner fails to establish a prima facie case of obviousness. Therefore, we reverse the rejection of claim 15 under 35 U.S.C. § 103(a) as obvious over Read-Rite.

CONCLUSION

In summary, the rejection of claim 15 under 35 U.S.C. § 103(a) is reversed.

REVERSED

KENNETH W. HAIRSTON)	
Administrative Patent Judge)	
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LANCE LEONARD BARRY)	APPEALS
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HOWARD B. BLANKENSHIP)	
Administrative Patent Judge)	

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